

REMARKS/ARGUMENTS

Claims 12, 13, 15-23 and 25-31 are pending herein. Claims 12 and 13 have been amended hereby, and claim 14 has been cancelled without prejudice or disclaimer. Claim 24 has been cancelled because of its dependency from previously cancelled claim 11. Applicants respectfully submit that support for rewritten claims 12 and 13 can be found in Fig. 1 and in the present specification on page 7, and that no new matter has been added.

1. Claims 22-31 were withdrawn as being drawn to a non-elected invention in view of the election, made with traverse, on September 4, 2007 to prosecute the claims of Group I (claims 12-21). Contrary to the PTO's position, the provisional election was made with traverse on September 4, 2007, before the Examiner issued the written restriction on September 10, 2007.

2. Claims 12, 14 and 16 were rejected under §102(b) over McArdie [sic., McArdle]. To the extent that the PTO may attempt to assert this rejection against the rewritten claims submitted above, it is respectfully traversed.

Independent claim 12 recites a porous material comprising silicon carbide particles as an aggregate and a silicon nitride binder bonding the silicon carbide particles so as to define pores present between the silicon carbide particles to provide an open porosity of 50% to 75%. A surface of the silicon nitride defining each pore is either free from any columnar silicon nitride, or includes columnar silicon nitride, provided that an amount of columnar silicon nitride having a thickness of more than 2 μm and an aspect ratio of less than 10 is greater than an amount of columnar silicon nitride having a thickness of 2 μm or less or an aspect ratio of 10 or more.

The PTO asserted that McArdle teaches "ceramic aggregate particles comprising a plurality of solid particles such as silicon carbide (Pg. 2, Col. 2, Par. 0028) bound together by silicon nitride (pg. 2, Col. 1, Par. 0022)" (Office Action, page 2, lines 12-14). The PTO also asserted that in McArdle, the "binding material

improves porosity in between the particles (Pg. 3, Col. 2, Par. 0035) and therefore must be present between the particles” (Office Action, page 2, lines 16-17).

Applicants respectfully submit, however, that in the context of McArdle, the improved porosity and control over porosity relate to providing a reduced porosity with respect to each aggregate particle 80. In fact, paragraph [0080] of McArdle recites that the solid particulates 84 are “coated by and embedded in a ceramic binder 82,” which logically suggests to one skilled in the art that the binder would substantially fill the spaces between the particulates embedded therein. In addition, although McArdle’s Fig. 1 shows the presence of only a minimal number of surface connected pores 86, paragraph [0102] of McArdle teaches that, in one embodiment, the volume % porosity can range from 1% to a maximum of 40%, but in most of the other embodiments, the total pore volume and volume % porosity values are considerably lower.

As explained above, independent claim 12 now recites a minimum porosity value of 50%, which far exceeds the maximum porosity of 40 vol.% in McArdle.

For at least the foregoing reasons, Applicants respectfully submit that McArdle fails to disclose or suggest each and every feature of independent claim 12. Applicants respectfully submit that independent claim 12, and all claims depending directly or indirectly therefrom define patentable subject matter over McArdle, and respectfully request that the above rejection be reconsidered and withdrawn.

3. Claims 13, 15 and 17-21 were rejected under §103(a) over McArdle in view of Ohno. To the extent that the PTO may attempt to assert this rejection against the rewritten claims submitted above, it is respectfully traversed.

Independent claim 13 recites a porous material comprising, among other things, silicon carbide particles as an aggregate and a silicon nitride binder directly bonded with the silicon carbide particles and bonding the silicon carbide particles with one another so as to define pores between the silicon carbide particles. The pores have a specific surface area of $1 \text{ m}^2/\text{g}$ or less.

The PTO asserted that both McArdle and Ohno “use Al_2O_3 around the silicon carbide particles to form the said pores between the silicon carbide and binder” (Office Action, page 4, lines 11-12). Applicants respectfully submit, however, that in the present invention, the silicon nitride binder directly contacts each of the silicon carbide particles, with no interposed coating layer.

Applicants respectfully submit that the PTO’s entire basis for combining the references rests on the requirement that the SiC particles in both McArdle and Ohno are coated with alumina. Applicants respectfully submit that rewritten claim 13 now recites a direct contact relationship between the SiC particles and the silicon nitride binder, which not only distinguishes Ohno, but also renders moot the PTO’s reasoning with respect to the asserted combination of McArdle and Ohno in the first place.

That is, although Ohno arguably discloses a possibility of using silicon nitride and silicon carbide to form the ceramic support, Applicants respectfully submit that Ohno fails to disclose or suggest the direct bonding relationship between the silicon nitride particles and the silicon carbide particles now recited in independent claim 13. Moreover, Applicants respectfully submit that one skilled in the art would readily understand that a mere mixing of silicon nitride particles with silicon carbide particles is not sufficient to form the claimed direct bonding of silicon nitride particles with silicon carbide particles.

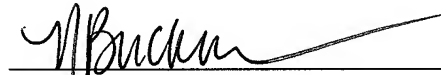
For at least the foregoing reasons, Applicants respectfully submit that the applied references fail to disclose or suggest each and every feature recited in rewritten independent claim 13, and that one skilled in the art could not have arrived at the present invention in view of the applied references, even if those references were combined in the manner asserted in the Office Action. Accordingly, Applicants respectfully submit that rewritten independent claim 13 and all claims depending directly or indirectly therefrom define patentable subject matter over the prior art of record, and respectfully request that the above rejection be reconsidered and withdrawn.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

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Date



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